College of American Pathologists Coagulation Resource Committee: Improving Laboratory Practices

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Proficiency testing in coagulation through the College of American Pathologists (CAP) began in 1960. In 1981, the CAP Coagulation Resource Committee was established to 1) design and analyze proficiency testing in coagulation, 2) develop new proficiency testing programs as needed, 3) update the CAP Inspection Checklist when indicated, and 4) provide sources of education in coagulation. Four coagulation consensus conferences have been conducted by the committee, resulting in the publication of two books, and more recently, a series of publications on anticoagulation in 1998 and hypercoagulability in 2002. Numerous original articles, algorithms and other educational materials have been published by the committee, and oral presentations have been provided at various (inter)national meetings. In addition, the committee provides opinions on documents prepared by other organizations, when requested.
Results: The committee has been able to improve laboratory practices and understanding of coagulation assays through the design and analysis of proficiency test results, as shown in four recent examples: 1) The committee noticed that passing scores were more common with the PT than with the INR. Upon investigation, the committee discovered that 4% of laboratories were calculating the INR incorrectly. Therefore, the INR calculation became graded in 2004, and subsequent error rates have been <1%. 2) The committee observed that D-dimer results had wide interlaboratory CV's and that the distribution of results implied that many laboratories were incorrectly using D-dimer units versus FEU units. Upon investigation, it was revealed that over 30% of laboratories were incorrectly using a cut-off that is too high for exclusion of thrombosis. Education regarding this issue has been published, presented orally, incorporated into the CAP Inspection Checklist, and disseminated to the manufacturers. 3) A proficiency test survey comprised of specimens containing varying concentrations of fondaparinux, a new anticoagulant, revealed that fondaparinux can affect the PT, PTT, and factor VIII, but not fibrinogen, thrombin time, or antithrombin assays. The data also showed that fondaparinux is the most accurate calibrator for fondaparinux assays, while heparin was not. 4) Proficiency testing analysis of ristocetin cofactor and von Willebrand factor antigen found good agreement between the mean results and the ISTH standard assigned value, but the CV's were wide for ristocetin cofactor.